# U.S. Coral Reef Monitoring Project Survey

## Part 1. Project Summary

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**Survey administered by:** ASCH
**Project ID:**
**Date Administered (dd-mo-yy):** 06-JAN-99

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**Project title:** Larval Dispersal Dynamics of Coral Reef Fishes

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**Principal investigators**

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**Division:**
**Bureau:**
**Branch:**
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**Keywords (provide several keywords that describe project data):**

RECRUITMENT
TRACE ELEMENTS
TEMPERATURE
REEF FISH
CHLOROPHYLL
SALINITY
COASTAL CIRCULATION
ZOOPLANKTON

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**Project Summary:**

The goal of this study was to determine the extent of local larval retention of reef fish larvae using otolith environmental markers to discriminate between larvae developing in coastal waters versus oceanic waters.

In addition, the sutdy was designed to evaluate the importance of nearshore circulation and productivity on recruitment of coral reef fishes.

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**Spatial Coverage of Database**

**Spatial Coverage (briefly describe geographic extent of project):**

This study was conducted on St. Croix, US Virgin Islands. Reef sites were located on both the north and south shores and the environmental monitoring of the coastal waters extended to approximately 5 km offshore. Nearshore surface circulation along the northshore was measured using a high frequency radar with coverage to approximately 20 km offshore.

**Geographic Extent (Bounding rectangle in decimal degrees);**

North: 17.835 West: 64.92
South: 17.658 East: 64.562

**Are data aggregated into geographic units:** [ ] yes [x] no
**Are data available in disaggregated form:** [ ] yes [ ] no

**How was spatial accuracy determined:**

[x] NOAA Nautical Chart [ ] USGS Quad [ ] Loran [ ] County Road Map
[ ] Survey [x] GPS [ ] Other:

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**Temporal Characteristics of Database**

**Temporal characteristics (brief narrative):**

Data were collected from June to early September. Recruitment was monitored weekly; nearshore oceanography was monitored biweekly; and ocean circulation was monitored hourly.

**Period of Record:**

Begin (d/mo/yr): 1/06/97 End (d/mo/yr): 7/9/97

**Sampling is:** [ ] Ongoing [ ] Planned [x] Historic

**Number of sampling stations:** 19

**Frequency of Sampling:**

[x] Hourly [ ] Daily [x]Weekly [ ] Monthly [ ] Annually [x] Other: bi-weekly

**Sampling Interval:**

[x] Fixed [ ] Intermittent

**How is sampling recorded?**

[ ] Automated [x] Non-automated

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**Data Parameters:**

**Specific Constituents/Parameters Sampled (include units):**

REEF FISH RECRUIT DENSITY (# FISH/SQUARE METER) MEASURED WEEKLY
OCEAN CURRENT SPPED (CENTIMETERS/SECOND) MEASURED HOURLY
WATER TRACE ELEMENT CONCENTRATION (ppm-ppt) MEASURED BIWEEKLY
WATER TEMPRERATURE (CELSIUS) MEASURED BIWEEKLY
SALINITY (ppt) MEASURED BIWEEKLY
CHLOROPHYLL A (MILLIGRAMS/CUBIC METER) MEASURED BIWEEKLY
ZOOPLANKTON DENSITY (# OF EACH TAXON/CUBIC METER) MEASURED BIWEEKLY

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**Methodology:**

**Provide a short description about how monitoring data are gathered/acquired:**

Recruitment was measured at 8 permanent 625 square meter quadrats at each station. Water samples were collected using a niskin bottle at 3 depths/station for trace element and chlorophyll analysis. Zooplankton data were collected with a 125 um mess net, oblique tow in upper 25 m of water column. Temperature and salinity were measured to a depth of 150 m at each station using a CTD. Ocean surface currents were measured with CODAR.

**On what basis were sites selected?**

Environment (leeward vs. windward), proximity to island wake region

**How are samples processed, stored, and archived in the field?**

Trace elements: filtered and acidified
Fish recruits: frozen
Chlorophyll: filtered and frozen
Zooplankton: size fractioned and preserved in ethanol

**How are samples processed, stored, and archived in the laboratory?**

Trace elements: extracted and analyzed on mass spec (either magnetic sector ICPMS or ICPMS)
Chlorophyll: analyzed by fluorometry
Zooplankton: counted and archived in labelling vials
Recruits: otoliths removed and archived in micropaleo slides

**What methods were used for sample analysis and quality assurance?**

Standard protocols were followed for all data types.

**[ ] Data quality analysis**

**[**x**] Chemical analysis:** Instrument calibration and comparison to certified standards.

**Describe any assumptions in assembling/acquiring monitoring data:**

**Describe the primary limitations with monitoring data:**

Coverage area is limited to only 5 km offshore. Monitoring was only conducted for approximately 4 months.

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**Database Characteristics:**

**Format:**

[x] Digital [ ] Map

[ ] Hardcopy (reports, data sheets, tables) [ ]Other_____

**Status (check one):**

[ ] Database Available/Being Distributed [x] Portions of Database Available

[ ] Data Not Available [ ]Other_____

**Predominant Data Type:**

[x] Numeric [ ] Qualitative

**How is data stored (hardware & software):**

Macintosh platform, spreadsheet

**Data Structure:**

[x] Discrete Points (sampling site) [ ] Line/transect (e.g., shoreline, beach)

[ ] Polygon (watershed)

**Data Completeness (check one):**

[x] Data clean [ ] Data need minor work [ ] Data need major work [ ] Other: The data is not yet available.

**Data Maintenance (check one):**

[x] No maintenance [ ] Intermittent maintenance [ ]Periodic maintenance (fixed intervals)

[ ] Continuous maintenance [ ] Other:

**Are the following elements in this database available for each sampling location (check all that apply)?**

[x] Station Location (lat/long coordinates of site or areal unit)

[x] Frequency of Sampling (by station location)

[x] Constituents/Parameters Sampled (by station location)

[x] Period of Record

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**Use and Users:**

**How is data used?**

[x] Research

[ ] Monitoring

[ ] Planning

[ ] Management

[ ] Regulatory

**Users (identify specific institutions):**

[ ] Federal Government

[ ] State Government

[ ] Local Government

[ ] Regional Entities

[x] Academic: University of California

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**Data Availability:**

**On-line (describe how to access, i.e., bbs, Telnet, world wide web):**

**Off-line: (describe how to access):**

Data can be accessed by request.

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**Are costs associated with requests?** [ ] yes [x] no
**If yes, please explain:**

**Access constraints (describe briefly any constraints for accessing data set):**

Data will not be available until the results of the research have been published.

**Use constraints (describe briefly any constraints for using data set):**

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